

REMARKS

In paragraph 2 of the Office Action, claims 11, 23, 31 and 34 were rejected under 35 U.S.C. §112, second paragraph, for failing to particularly point out and distinctly claim the subject matter that the applicant regards as the invention.

Reconsideration is requested in view of this Amendment.

Claims 1, 11, 23, 31 and 34 have been amended to recite that the amount of CaO is always 0.5-1.5%. For this reason, the rejected claims are now properly dependent on claim 1 and is requested that this ground of rejection be withdrawn.

In paragraph 4 of the Office Action, Claims 1-34 were rejected under 35 U.S.C. §102(b) as anticipated by or in the alternative under 35 U.S.C. §103(a) as obvious over Goto for reasons of record.

Reconsideration is requested.

The Claims have been amended to point out that the total amount of the SiO₂, Al₂O₃ and P₂O₅ has a lower value of "86.7%". The basis for this recitation is page 12, line 15 of the original specification. The present invention provides that the total amount of the SiO₂, Al₂O₃ and P₂O₅ is from 86.7% to 89% and the ratio of P₂O₅ to Al₂O₃ is in mass% within the range of 0.270 to 0.33 as recited in amended claim 1.

Examples 3 and 11 of Goto do not disclose any compositions having the amounts of SiO₂, Al₂O₃ and P₂O₅ set forth in the amended claims. The coefficient of thermal expansion of Example 3 of Goto, within the temperature range of 0-50°, is $2.5 \times 10^{-7}/^{\circ}\text{C}$. This value is much higher than the coefficient of thermal expansion of the claimed glass ceramics of the present invention.

The recitation of the amounts of SiO₂, Al₂O₃ and P₂O₅ as being 86.7% to 89% and the ratio of P₂O₅ to Al₂O₃ as being within a range from 0.270 to 0.33, results in the limitation of the $\Delta L/L$ curve, within a temperature range of 0-50°, to a flattened curve in the vicinity of 0°C to provide an ultra low thermal expansion property. This inventive concept is not disclosed in Goto.

The Examiner is asked to note that the applicant's argument that the Goto Examples

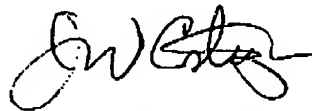
have a thermal expansion coefficient of was actually intended to point out that such a thermal expansion at a temperature range of -60°C to $+160^{\circ}\text{C}$ in cases where the ratio of P_2O_5 to Al_2O_3 was outside the range recited in the present claims. There was no intent to convey the thought that all of the Goto Examples have a coefficient of thermal expansion of $0.2 \times 10^{-7}/^{\circ}\text{C}$.

The properties of the glass-ceramics of Goto, as shown by the curve of Example 7 in the graph, the $\Delta L/L$ tends to increase in the temperature range of $0-50^{\circ}\text{C}$ and it tends to decrease towards 160°C . Accordingly, even if the glass-ceramics of the Goto Examples have a coefficient of $0.2 \times 10^{-7}/^{\circ}\text{C}$ or below in the temperature range of -60°C to $+160^{\circ}\text{C}$, the coefficient of thermal expansion becomes larger within the range of $0-50^{\circ}\text{C}$.

For these reasons, it is requested that this ground of rejection not be applied to the amended claims.

An early and favorable action is earnestly solicited.

Respectfully submitted,



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